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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,751	12/19/2000	Tongbi Jiang	23804-P002C2	8773

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EXAMINER

CHANG, RICK KILTAE

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/740,751	<b>Applicant(s)</b> JIANG ET AL.	
	<b>Examiner</b> Rick K. Chang	<b>Art Unit</b> 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 18-96 is/are pending in the application.
- 4a) Of the above claim(s) that are not listed in item 6 below is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-30 and 47-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>of record</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The Final Office Action mailed on February 28, 2006 is hereby withdrawn.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 18-19, 26, 30, 47 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanborn et al (US 4,916,808).

Sanborn discloses a substrate 18; a pad 20; apertures 22 and 24 are concentric; a positive CTE material (16 is a metal and inherently has positive CTE); a negative CTE material (13 is a dielectric and inherently has negative CTE); it is inherent that when 15 is in a state of uncured or semi-cured will act an interfacial material to permit relative movement; linear height of 22 is smaller than linear height of 24. It is inherent in the printed circuit board manufacturing art to provide a different material for 13 and 16 having either negative or positive CTE depending on what is being mounted thereon.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 20 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 6,211,485) in view of Romanklw (US 3,602,635).

Burgess fails to disclose silicon dioxide.

Romanklw discloses silicon dioxide (Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess electronic device by providing silicon dioxide for layer 16 in Fig. 2 to isolate an IC from another conductor layer, as taught by Romanklw, for the purpose of providing a high temperature dielectric material.

5. Claims 21 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 6,211,485) in view of Official Notice.

Burgess fails to disclose that the first material is a polyimide.

Official Notice is taken that it is well known in the art to provide polyimide for layer 16 in Fig. 2 to isolate an IC from another conductor layer to separate conductors from each other in a multilayered PCB.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess electronic device by providing polyimide for layer 16 in Fig. 2 to isolate an IC from another conductor layer, as taught by Official Notice, for the purpose of separating conductors from each other in a multilayered PCB.

6. Claims 22-25 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 6,211,485) in view of Chandra et al (US 5,935,638).

Burgess fails to disclose that the second material is zirconium tungstate.

Chandra discloses zirconium tungstate (col. 4, lines 60-63).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess by providing zirconium tungstate, as Chandra, for the purpose of providing a high dielectric constant material.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to provide single-crystal, amorphous or polymer bound zirconium tungstate because Applicant has not disclosed that incorporating single-crystal, amorphous or polymer bound zirconium tungstate provides a novel device, is used for a particular purpose, or solves a stated problem. Therefore, it would have been an obvious matter of design choice to modify Burgess/Chandra to provide a high dielectric constant material.

7. Claims 27 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanborn et al (US 4,916,808) in view of Wilson (US 5,966,803).

Sanborn fails to disclose that the substrate is ceramic.

Wilson discloses that the substrate is ceramic (col. 1, line 57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sanborn by providing ceramic, as taught by Wilson, for the purpose of providing a substrate using a cheap and abundant material.

8. Claims 28 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanborn et al (US 4,916,808) in view of Wilson (US 5,966,803).

Sanborn fails to disclose a package of an IC.

Wilson discloses a package of an IC (col. 1, line 57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sanborn by providing a package of an IC, as taught by Wilson, for the purpose of forming an electronic device.

9. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanborn et al (US 4,916,808) in view of Official Notice.

Sanborn fails to disclose forming the first material using a spin-on process followed by a photo-define and –etch process.

Official Notice is taken that it is well known in the art to form a polymer material using a spin-on process followed by a photo-define and –etch process to apply uncured material on a substrate and to form vias therein.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sanborn by form a polymer material using a spin-on process followed by a photo-define and –etch process, as taught by Official Notice, for the purpose of applying uncured material on a substrate and to form vias therein.

#### ***Response to Arguments***

10. Applicant's arguments with respect to claims above have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

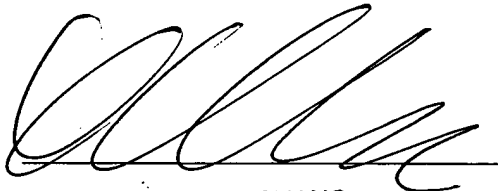
11. **Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for**

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**better clarity (optional). Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM, Monday through Thursday.

The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.



RICHARD CHANG  
PRIMARY EXAMINER

RC  
October 3, 2006